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Canada

PROPANE VEHICLE CARBURETION
MARKET DEVELOPMENT
1980-1986

Report TE-86-12

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INTRODUCTION

This report is an update of the April 1985 report entitled "Propane Vehicle Carburetion - Market Development 1980-84". Once again we are reviewing key aspects of the propane carburetion market and are focussing specifically on market growth, consumer characteristics, industry activity and growth, factors affecting propane pricing and supply and consumer attitudes to propane. This report includes information derived from the following sources: Propane Vehicle Program data, telephone interviews with key industry personnel, and information generated within Energy, Mines and Resources Canada.

EXECUTIVE SUMMARY

Propane Vehicle Program statistics indicate that 45,637 applications for 71,008 vehicles were received by the end of the Program in March 1985. The manufacturer-wholesale industry has been responsible for the largest proportion of vehicle conversions, with service industries a close second; the most common types of vehicles converted are pick-ups and light vans. Approximately 80% of the vehicles included in Program statistics were converted after the vehicles had been purchased.

The industry survey revealed that a total of 127,259 propane tanks had been sold in Canada by March 1986, with an estimated 15% being manifolded. Tank sales increased slightly between July 1983 and July 1984, and between August 1984 and March 1986 a decline was reported. Almost all propane tanks are now manufactured in Canada.

The vehicle manufacturers have been playing an important role in the development of the propane vehicle industry particularly between 1981 and 1984 with sales of 8,964 propane vehicles. Between March 1985 (end of the Federal Propane Program) and March 1986, a 57% decline in the sale of propane vehicles was reported. The ten largest conversion companies identified through Program data completed 85,239 conversions between October 1980 and 1986. Conversions have also decreased since the end of the Program.

The industrial growth factors that were considered have shown a definite increase. From 1983 to 1984 the number of conversion centres in Canada (according to Program data) rose from 1,357 to 1,843. As of April 1986, there were approximately 2,640 conversion centres operating in Canada.

I. THE PROPANE VEHICLE PROGRAM

The Propane Vehicle Program ended on March 31, 1985. Over 10,000 applications were received in the final month, and these required several months to process. The original target set for the Program was 90,000 vehicles, and the actual total of 71,008 vehicles was considered to be successful.

1. Program Activity

At the end of July 1983, contributions had been paid for 23,683 vehicles. As of July 31, 1984 the number had risen to 41,237 vehicles, by December 31, 1984 to 49,866 vehicles, and by March 31, 1986 to 71,008 vehicles. A break-down of Program figures by provinces is shown below.

It should be noted that as of April 1, 1984 the eligibility criteria of the Program were expanded to include both non-commercial and dual fuel vehicles. Before that date many conversions to dual fuel had been done but these were not eligible for the grant, and are therefore not included in the program statistics in the following tables unless specified.

FIGURE 1. TOTAL PROGRAM FIGURES

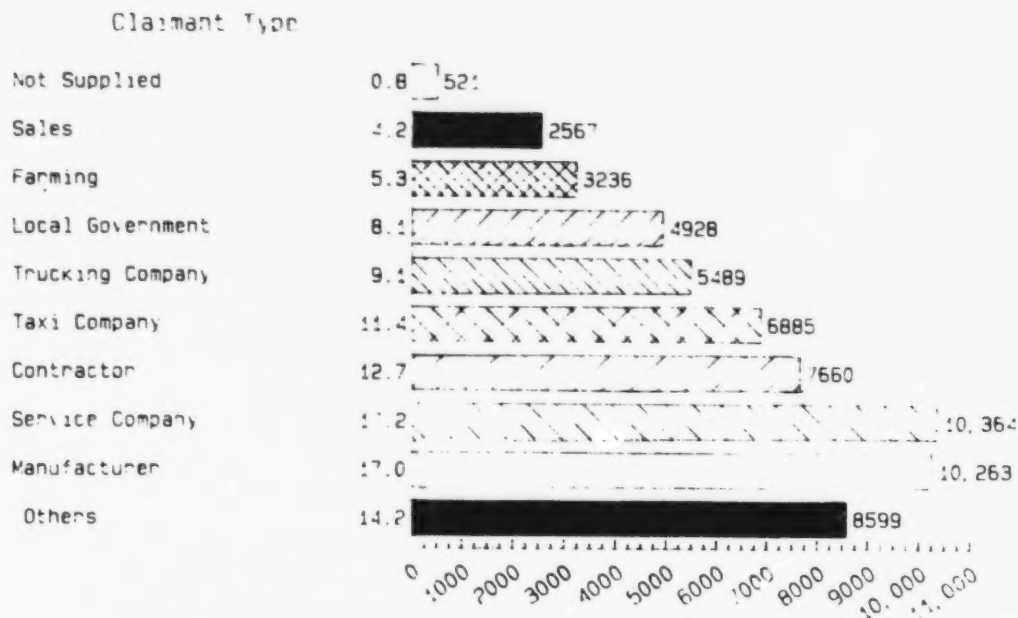
<u>Province</u>	<u>Applicants</u>	<u>Vehicles</u>	<u>% of Total No. of Vehicles</u>
Maritimes	73	140	.2
Quebec	1,327	3,502	5.0
Ontario	19,847	32,788	46.1
Manitoba	1,204	1,848	2.6
Saskatchewan	1,612	2,153	3.0
Alberta	11,286	16,739	23.6
B.C.	10,258	13,809	19.5
Yukon & N.W.T.	24	29	-
	<u>45,631</u>	<u>71,008</u>	<u>100</u>

Approximately 51.3% of the applications received to the end of the Program (March, 1985) were from the East (Quebec and Ontario) and 48.7% from the West (Prairies and B.C.). This shows a continuation of a shift from east to west that has been noted in these reports since 1984.

2. Market Profile

The Program data includes a breakdown of claimant types as indicated in Figure 2. There could be a slight margin of error in these data as applicants may have misunderstood the claimant categories when filling out their application form.

FIGURE 2
PROPANE VEHICLE PROGRAM
Vehicles converted by Claimant Type



TOTAL NUMBER OF VEHICLES CONVERTED 60,512
(not including private vehicles)

TOTAL NO. OF VEHICLES CONVERTED
INCLUDING PRIVATE VEHICLES 71,008

Program Statistics suggest that service companies are now the largest claimant group followed by the manufacturing industry. Contractors and taxi companies occupy the third and fourth place respectively.

It should be noted that the total number of vehicles shown for the figures on program data may vary slightly according to whether or not the information was properly completed on the application forms.

The following is a breakdown by vehicle type to the end of the Program showing the percentage each vehicle type represents of the total number of vehicles converted under the Program.

FIGURE 3

PROPANE VEHICLE PROGRAM
VEHICLES BY VEHICLE TYPE TO THE END OF THE PROGRAM

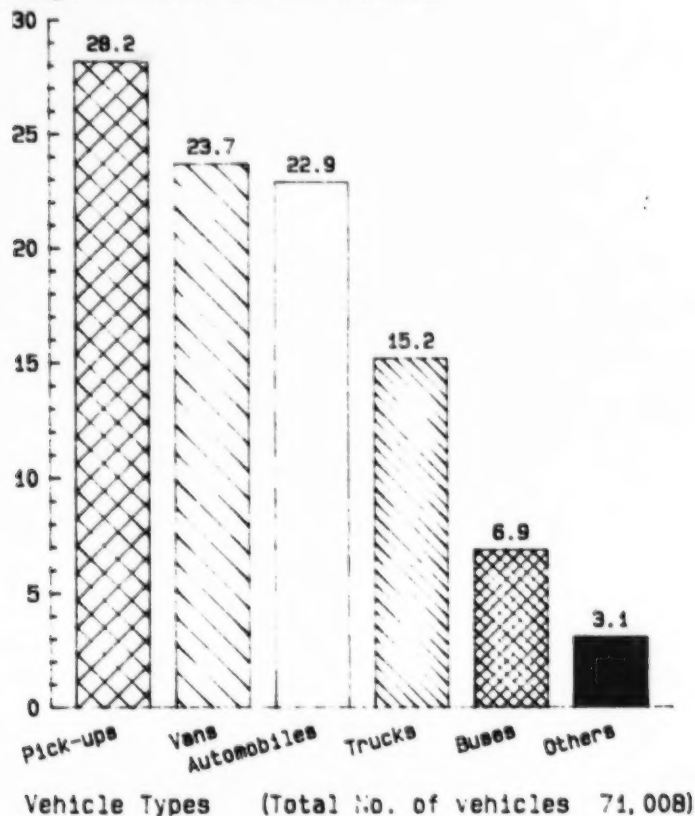
Automobiles 4 cylinder (Class I)	2,357	3.3%
6 cylinder (Class I)	2,778	3.9%
8 cylinder (Class I)	11,147	15.7%
Pick-ups under 10,000 GVW (Class II)	12,548	17.7%
over 10,000 GVW (Class III)	7,438	10.5%
Vans under 10,000 GVW (Class II)	15,046	21.2%
over 10,000 GVW (Class III)	1,774	2.5%
Trucks under 10,000 lbs GVW (Class II)	3,273	4.6%
under 14,000 lbs GVW (Class III)	2,313	3.3%
under 16,000 lbs GVW (Class IV)	831	1.2%
under 19,000 lbs GVW (Class V)	909	1.3%
under 26,000 lbs GVW (Class VI)	1,378	1.9%
under 33,000 lbs GVW (Class VII)	1,434	2.0%
over 33,000 lbs GVW (Class VII)	696	0.9%
Buses - School & Transit	4,877	6.9%
Other Vehicles (Including unlicensed farm vehicles, unidentified types and diesel)	2,209	3.1%
Including Private Vehicles	71,008	100.0%

A graphic illustration summarizing each type of vehicle follows:

FIGURE 4

PROPANE VEHICLE PROGRAM
Conversion by Vehicle Type
October 1980 to April 1985

Percentage of Total No. of Vehicles



* "Others" includes unlicensed farm vehicles,
unidentified types and diesel

Figure 5 shows a breakdown for single and dual fuel vehicles, as well as commercial and private vehicles, all by province and by claimant type. This is for the time period April 1, 1984 to the end of the Program because private and dual fuel vehicles became eligible as of April 1st, 1984. During this period, single fuel vehicles accounted for 85% of the total and dual for 15%. Commercial vehicles made up 78% of the total and private vehicles 22%.

FIGURE 5

PROPANE VEHICLE PROGRAM
CONVERSIONS BY CLAIMANT TYPES (INCLUDING PRIVATE USE AND SINGLE/DUAL FUEL)

APRIL 1, 1984 TO THE END OF PROGRAM

V = Including Single and Dual Fuel
D = Dual Fuel

PROV.	1 Taxi		2 Trucking		3 Manufacturing Wholesale Retailer		4 Contractor		5 Service Industry		6 Sales		7 Farming		8 Government		9 Other		10 Private		11 Not Supplied		
	V	D	V	D	V	D	V	D	V	D	V	D	V	D	V	D	V	D	V	D	V	D	
N.S.	1	0			1	1			8	0							5	0	6	0			
N.B.			1	0	3	1	1	0	13	2							4	2	10	2			
PEI									0	1													
QUE.	107	30	163	4	142	17	105	18	898	9	31	11	22	5	19	0	251	8	121	56	103	5	
ONT.	1762	88	440	20	1992	208	1188	187	1918	175	408	88	241	76	1185	10	1747	111	1351	962	336	44	
MAN.	113	3	97	11	154	22	56	9	218	16	26	8	28	11	33	1	90	5	80	41	21	0	
SASK.	192	30	48	13	119	22	133	42	113	28	53	24	163	64	92	1	131	19	244	116	20	2	
ALTA.	756	128	490	45	915	60	1235	132	1332	120	232	21	644	109	590	1	933	43	2709	631	289	24	
BC	737	35	532	30	855	75	1439	153	1022	90	200	41	344	80	359	14	739	45	3563	1045	263	15	
MBT					1	0	1		2	1							7	0	3	0			
YUK.							1	0									1	1	4	1	1	1	
TOTAL	3668	314	1771	123	4181	407	4158	542	5524	442	950	193	1442	345	2278	27	3908	234	8091	2854	1033	91	
Total Single Fuel Vehicles										31,432	(85%)	Total Commercial Vehicles										29,913	(78%)
Total Dual Fuel Vehicles										5,572	(15%)	Total Private Vehicles										8,091	(22%)
Total Vehicles										37,004												37,004	

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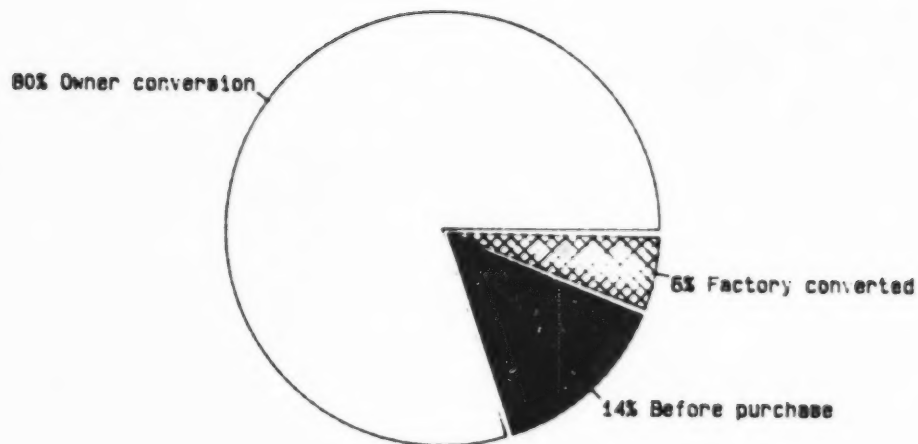
Figures 6 and 7 divide vehicle conversions according to whether the conversion was done before or after purchase of the vehicle, or if the equipment was factory installed. This is of particular interest in Ontario (Figure 7) where the 7% sales tax is reimbursed for new propane vehicles and for vehicles converted within a month following the purchase. In that province, "factory installed" and "before purchase" conversions account for 33% of the total number of vehicles in the Program, compared with the national figure of 20% for those two categories.

FIGURE 6

Propane Vehicle Program
Conversion Types

October 1980 - December 1985

Owner conversion	56,219	80%
Prior to purchase	9,689	14%
Factory installed	4,303	6%
TOTAL	70,211	100%



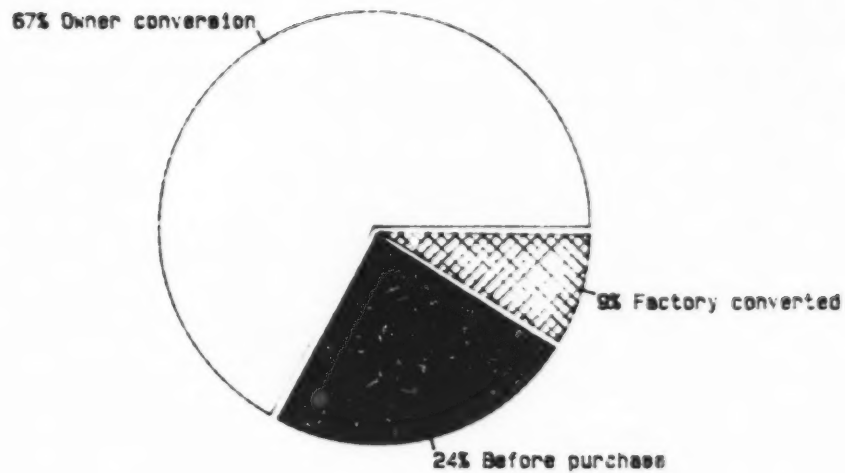
Total No. of Conversions 70,211

FIGURE 7

Propane Vehicle Program
Conversion Types for Ontario

October 1980 - December 1985

Owner conversion	21,711	67%
Prior to purchase	7,633	24%
Factory installed	3,136	9%
TOTAL	32,480	100%



Total No. of Conversions 32,480

The cost of conversion has declined slightly over the past few years. The national average in 1981 was \$1,599 and the national average in 1984 was \$1,417 (\$1,150 in 1981 dollars). This was likely due to more components of the conversion kits being produced domestically and to increasing volumes. Figure 8 below shows average conversion costs in 1985 broken down by vehicle type and by province.

FIGURE 8

PROPANE VEHICLE PROGRAM
Average Conversion Cost by Vehicle Type
January 1, 1985 to December 31, 1985

Vehicle Type	Quebec	Ontario	Saskatchewan	Alberta	Manitoba	British Columbia	National Average
Not supplied vehicle	\$1,525.49	\$1,359.86	\$1,095.32	\$1,301.68	\$1,818.06	\$1,440.76	\$1,379.44
Automobile 4 cyl	1,479.78	1,233.66	1,213.93	1,245.85	1,027.08	1,293.67	1,380.16
Automobile 6 cyl	1,277.43	1,388.98	1,230.49	1,283.18	1,282.37	1,365.03	1,353.50
Automobile 8 cyl	1,403.82	1,443.82	1,306.90	1,292.30	1,314.80	1,422.20	1,387.80
Pick-up under 6000GVW	1,401.47	1,398.81	1,229.64	1,286.19	1,297.29	1,442.32	1,354.80
Pick-up over 6000GVW	1,452.37	1,475.12	1,287.42	1,354.03	1,248.82	1,467.34	1,415.09
Van under 10,000GVW	1,499.60	1,423.52	1,374.89	1,394.18	1,432.23	1,473.43	1,436.87
Van over 10,000GVW	1,460.06	1,650.51	1,501.29	1,529.64	1,577.14	1,524.96	1,557.28
Trucks under 10,000GVW	1,349.90	1,469.24	1,408.59	1,439.19	1,410.65	1,466.19	1,446.45
Trucks under 14,000GVW	1,684.65	1,519.79	1,505.32	1,415.49	1,404.49	1,487.53	1,475.38
Trucks under 16,000GVW	1,605.58	1,817.58	1,152.60	1,237.71	1,348.50	1,817.54	1,442.16
Trucks under 19,000GVW	1,313.52	1,548.56	1,545.76	1,465.46	1,028.27	1,473.72	1,479.99
Trucks under 26,000GVW	1,495.78	1,606.55	1,264.38	1,504.32	1,358.07	1,548.52	1,527.10
Trucks under 33,000GVW	1,661.99	1,415.78	1,372.55	1,411.90	1,107.99	1,634.68	1,478.82
Trucks over 33,000GVW	1,991.50	1,492.54	1,526.60	1,526.66	1,272.11	1,418.34	1,464.67
Other Vehicles	1,752.82	1,670.05	1,462.39	1,565.81	1,547.25	1,663.10	1,637.85
Transit Buses	1,969.20	1,698.62	789.14	1,248.09	-	1,541.33	1,559.38
School Buses	1,552.24	1,593.96	1,319.08	1,380.78	-	1,564.49	1,470.91
Unlicensed Farm	737.89	1,042.98	966.13	861.75	-	898.89	913.65
TOTAL	1,475.99	1,443.16	1,295.85	1,346.52	1,327.01	1,468.01	1,417.61*

*The National Average includes figures from Nova Scotia, New Brunswick, the Northwest Territory and Yukon Territory, as well as Quebec, Ontario, Saskatchewan, Alberta, Manitoba and British Columbia.

II. PROPANE VEHICLE POPULATION

Industry Survey

Statistics collected through the Propane Vehicle Program accurately reflect the number of commercial propane dedicated vehicles that received the \$400 federal contribution up to April 1984, and the number of both single and dual fuel, commercial and privately owned propane vehicles for which the grant was paid from April 1, 1984 to the end of the program. In order to develop a better estimate of the total number of propane vehicles on the road in Canada at this time, in this survey as in the previous one, an officer of the Transportation Energy Division interviewed Canadian tank manufacturers, the major conversion companies and vehicle manufacturers regarding annual sales figures for propane. Statistics were obtained to March 31, 1985 and from April 1, 1985 to March 31, 1986.

a) Tank Sales

FIGURE 9: TANK SALES DISTRIBUTION BETWEEN 1979 AND 1986

<u>Year</u>	<u>Canadian Manufacturers</u>	<u>Canadian Importers</u>	<u>Total Sales</u>
July 85-Mar 86	9,538	266	9,804
Mar 85-July 85	9,519	132	9,651
Aug 84-Mar 85	18,140	266	18,406
Aug 83-July 84	24,918	-	24,918
1983-(to July)	13,450	1,300	14,750
1982	15,100	9,700	24,800
1981	9,880	11,200	21,080
1980	nil	2,050	2,050
1979	350	1,450	1,800
TOTAL	100,895	26,364	127,259

Figure 9 shows that as of the end of July 1984, the number of propane tanks sold in Canada for vehicle use was 89,398, and as of March 1986 this figure had risen to 107,538. Tank manufacturers indicated that approximately 15% of the tanks sold overall are manifolded. A very small portion of tanks are imported from the United States.

Current statistics show that from July 85 to March 86 a significant reduction in tank production was experienced by most companies. Glisch Canada ceased production in 1986.

A total of 14,017 propane vehicles were sold to the end of March 1986 by the vehicle manufacturers. International Harvester ceased production of propane vehicles in 1985, and General Motors in 1986. Figure 10 illustrates the fluctuation in sales since 1981, with 1984 as the peak period.

FIGURE 10

Vehicle Manufacturers' Sales						
	1986	1985	1984	1983	1982	1981
Chrysler	1,650 breakdown not available	2,150 breakdown not available	1,072 cars 691 vans 218 light trucks	600 cars 350 vans 200 trucks	150 cars 140 vans 260 trucks	- - -
Ford	145 cars 42 heavy trucks	616 cars 131 heavy trucks	279 cars 332 light trucks 41 heavy trucks	236 cars 425 trucks	550 cars 300 trucks	- 300 trucks
GM	ceased production of PVs	120 pick-ups 56 vans	256 pick-ups	-	-	-
International Harvesters	-	ceased production of PVs	34 medium trucks	180	500	250
Lada	14	129	400	200	1,000	-
TOTAL NO. OF VEHICLES	1,851	3,202	3,323	2,191	2,900	550

TOTAL SALES 1981-1986 14,017

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b) Conversion Centres

The results of the survey of the vehicle conversion industry were based on the ten companies with the largest share in overall conversion activity, as identified through the Propane Vehicle program data.

NO. OF CONVERSIONS

July 1985 - March 1986	6,920
March 1985 - July 1985	6,047
August 1984 - March 1985	12,292
August 1983 - August 1984	13,180
October 1980 - July 1983	46,800
Total from October 1980 to March 1986	85,239

CONCLUSIONS

Based on all data available to the Transportation Energy Division, our estimate of the total number of propane vehicles in operation in Canada is supported by a recently completed independent evaluation of the Propane Vehicle Program.

Figure 11 summarizes the number of tanks, conversions, evaluation and vehicles manufactured as well as the results of the Propane Vehicle Program. This includes figures from the previous surveys to March 1986.

FIGURE 11

<u>SUMMARY OF PROPANE VEHICLE ACTIVITY 1980-86</u>							
	TOTAL to July 1983	August 1983 To July 1984	TOTAL to July 1984	August 1984 to October 1984	TOTAL to October 1984	October 1984 to end of program	TOTAL to the end of the program
Propane Vehicle Program -no. of vehicles	23,683	1,754	41,237	4,935	46,172	24,836	71,008
No. of Propane tanks sold	64,480	24,918	89,398	5,104	94,502	32,757	127,259
No. of conversions by 10 largest firms surveyed	46,800	13,180	59,980	3,330	63,310	21,929	85,239
No. of manufactured vehicles	5,641	3,223	8,964		8,964	5,053	14,017

III. INDUSTRIAL GROWTH

The total number of vehicles converted under the Propane Vehicle Program by fiscal year (April to March) is:

1980-3	20,337
1983-4	13,483
1984-5	37,188

There was a considerable increase in the number of propane vehicles for which federal grants were paid in 1984-5 over 1983-4. This increase can be partially accounted for by personal use and dual fuel vehicles being eligible from April, 1984.

As indicated in Figure 9, tank sales decreased slightly in 1985. Figure 10 indicates that vehicle manufacturers sold fewer propane vehicles in 1985 than in 1984.

The number of conversion centres across Canada, according to information derived from the Propane Vehicle Program applications, is shown below:

<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
497	1357	1843	Approx. 2600

These figures are cumulative.

IV. FACTORS AFFECTING PROPANE PRICING AND SUPPLY

Propane prices are expected to continue to track oil product prices. The higher oil prices are, the greater will be the prospects for growth and profitability in the propane industry. Propane is priced to compete with oil products, most notably furnace oil and petrochemical feedstocks at the major North American propane pricing point at Mont Belvieu, Texas on the U.S. Gulf Coast. The two major pricing points in Canada are Edmonton, Alberta and Sarnia, Ontario. These two Canadian centres track the Mont Belvieu price but with differentials reflecting transportation costs to the markets where they compete with Mont Belvieu supply. Edmonton prices tend to be a few cents below Mont Belvieu while Sarnia tends to be at the Mont Belvieu level. Since propane is priced to compete with oil products, propane prices track crude oil prices well on an annual average basis. Propane prices tend to be somewhat more volatile, however, since propane accounts for only a small part of total liquid and gaseous hydrocarbon supply (about 2.4 per cent in Canada), it can easily be used as a substitute in virtually all of the markets served by oil and natural gas. For these reasons, a shortage or glut in any of the oil or gas markets impacts quickly on the propane market and therefore on its price.

Beyond its major supply points there are two factors that increase the cost of propane relative to gasoline. These are: the need for pressurized storage; and the more stringent conditions imposed on its retail sale (e.g., the prohibition, in North America, but not in Europe, of self service stations, the requirements as to the location and configuration of retail locations and the more expensive metering devices).

The need for pressurized storage makes propane more expensive to transport than gasoline. This means that as markets become more distant from Edmonton and Sarnia, propane becomes progressively less competitive. For this reason, in the absence of production from the eastern offshore and northern frontier resources, the major markets for propane carburetion in Canada should continue to be Ontario, Alberta and British Columbia.

Propane appears able to compete better against gasoline when energy prices are high. Given that propane is priced relative to oil products at its pricing points, the higher the oil price, the larger the absolute difference between the two prices at that point and the better is propane able to absorb its higher transportation costs to more distant markets. Should the current period of lower oil and gasoline prices persist, the continued growth of the propane carburetion market will require some squeezing of margins, both through lower returns and increased efficiencies.

There is an advantage that propane gained over the past five years as a result of the growth of the carburetion market. That is the widening of the market and the lessening of its seasonality. This is making possible investments in improving the pipeline delivery system (e.g., the proposed expansion of the IPL system into Sarnia, the proposed new IPL terminal closer to Toronto for product out of Sarnia, and the upgrading of the Cochin facilities to permit delivery into Sarnia). These investments will lower delivered cost of propane in eastern Canada and will give access to competition that the wider market has encouraged and which has already lowered prices in some areas. Additional growth in the propane carburetion market is looked forward to as a means of attracting more automobile manufacturer interest to the market and of lowering conversion costs. Currently the cost of converting vehicles to propane ranges between \$1100 and \$1700 with the \$1200 and \$1600 levels the most common. Industry estimates suggest that it is possible to lower this range to \$600-\$1000 at large volume, specialized conversion shops.

Propane in Canada has traditionally been a "niche" fuel serving specialized markets in areas beyond the natural gas mains where its clean burning and portability qualities compensated for its higher delivered cost. This market tends to be low volume, high mark-up. As a result, Canada exported more than half of its available supply until the mid 1980s. With the growth of the carburetion market Canada has been exporting about 40 per cent of its production. This leaves about 2.8 million cubic metres that could be deflected into the domestic market.

This is sufficient to displace about 2.4 million cubic metres of gasoline or about seven per cent of that market. Since propane will continue to be limited in its geographic reach, to the type of vehicles that it can access, and because of the cost of conversion, there is more than enough propane available to meet the industry's marketing plan. Should the market expand above that level, there remains the possibility of imports. With new world oil and gas resources brought on stream over the past few years international trade in propane has been expanding and it is expected to continue to do so. Finally, the available propane supply could be further extended by using summer propane/butane mixes as is currently done in Europe.

Following is a summary of propane prices vs gasoline prices in major centres across Canada:

FIGURE 12

COMMERCIAL PRICES FOR PROPANE AND REGULAR UNLEADED GASOLINE

		IN SOME CANADIAN CITIES ⁽¹⁾													
		Vancouver		Calgary		Regina		Winnipeg		Toronto		Montréal		Halifax	
		Prop. (2)	Gas (3)(4)	Prop. (2)	Gas (3)	Prop. (2)	Gas (3)	Prop. (2)	Gas (3)	Prop. (2)	Gas (3)	Prop. (2)	Gas (3)	Prop. (2)	Gas (3)
Jan.	84	31.7	50.1	26.1	40.9	28.5	40.8	35.2	48.8	28.9	50.3	36.3	54.5	37.6	50.1
Feb.		31.7	50.1	26.1	40.9	28.5	40.8	35.2	48.8	28.9	50.3	36.3	54.5	37.6	50.1
Mar.		31.7	50.1	26.1	40.9	28.5	40.8	35.2	48.8	28.9	50.3	36.3	54.5	37.5	50.3
Apr.		28.9	50.1	26.3	40.9	28.5	40.8	35.2	48.8	28.9	49.9	36.3	54.5	37.5	50.3
May		28.9	50.3	26.3	41.1	28.5	41.0	35.2	49.0	28.9	50.1	36.3	54.7	37.5	50.5
June		28.9	50.3	26.3	41.1	28.5	41.0	35.2	49.0	28.9	50.1	36.3	54.7	37.5	50.5
July		28.9	50.9	26.3	41.7	28.5	41.6	35.2	49.6	28.9	51.2	36.3	55.4	37.5	51.2
Aug.		28.9	50.9	26.3	41.7	28.5	41.6	35.2	49.6	28.9	51.2	36.3	55.4	37.5	51.2
Sept.		30.4	50.9	27.6	41.7	28.5	41.6	35.2	49.6	28.9	51.2	36.3	55.4	37.6	51.2
Oct.		30.4	51.3	27.6	42.0	28.5	41.9	35.2	49.9	28.9	51.5	36.3	56.6	37.6	51.6
Nov.		30.4	53.5	28.0	44.2	28.5	44.1	35.2	52.1	28.9	53.7	36.3	58.8	37.5	53.7
Dec.		30.4	53.5	28.0	44.2	28.5	44.1	35.2	52.1	28.9	53.7	36.3	58.8	42.4	54.2
Jan.	85	30.4	54.8	28.0	45.2	28.5	45.1	35.2	53.1	28.9	54.8	36.3	59.9	42.4	55.3
Feb.		30.4	54.8	28.0	45.2	28.5	45.1	35.2	53.1	28.9	54.8	36.3	59.9	42.4	55.3
Mar.		30.4	54.8	28.0	45.2	28.5	45.1	35.2	53.1	28.9	54.8	36.3	59.9	42.4	55.5
Apr.		30.4	54.8	28.0	45.2	28.5	45.1	35.5	53.6	28.9	54.8	36.3	59.9	42.4	55.5
May		30.4	54.8	28.0	45.2	28.5	45.1	35.5	53.6	28.9	54.8	36.3	59.9	42.4	55.5
June		30.4	54.2	28.0	44.6	28.5	44.5	35.5	53.0	28.9	54.2	36.3	59.3	42.4	54.9
July		30.4	54.6	28.0	44.6	28.5	44.5	35.5	53.0	28.9	54.2	36.3	59.3	42.4	54.9
Aug.		30.4	54.6	28.0	44.6	28.5	44.5	35.5	53.0	28.9	54.2	36.3	59.3	42.4	54.9
Sept.		30.4	54.6	28.0	44.6	28.5	44.5	35.5	53.0	28.9	54.2	36.3	59.3	42.4	54.8
Oct.		30.4	56.4	28.0	46.6	28.5	46.5	35.5	55.0	28.9	56.2	36.3	61.3	42.3	56.8
Nov.		30.4	57.2	28.0	47.4	28.5	47.3	35.5	55.8	28.9	57.1	36.3	61.3	42.3	56.8
Dec.		30.4	58.0	28.0	48.0	28.5	47.9	35.5	56.3	28.9	57.4	36.3	61.3	45.6	57.2
Jan.	86	30.4	58.8	28.0	48.4	28.5	48.3	35.5	56.7	28.9	57.7	36.3	62.0	45.4	58.5
Feb.		30.4	56.8	28.0	46.4	28.5	46.3	35.5	54.7	28.9	55.7	36.3	62.8	45.4	55.2
Mar.		30.4	56.8	28.0	46.4	28.5	46.3	35.5	54.7	28.9	55.7	36.3	62.8	45.4	54.8
Apr.		30.4	52.2	28.0	37.6	28.5	42.0	35.5	47.6	28.9	52.4	36.3	55.1	45.4	48.8
May		30.4	52.2	28.0	37.6	28.5	42.0	35.5	47.6	28.9	52.4	36.3	55.1	45.4	48.8

- NOTES: (1) Including all road taxes. Prices represent month-end values.
 (2) Prices to commercial customers at distributor pumps.
 (3) Estimated theoretical pump prices are based on the posted dealer tankwagon price plus an estimated dealer margin, and includes provincial sales tax, federal sales tax but excludes the portion of the federal excise tax which is refundable for commercial purposes (1.5 ¢/l). Prices shown in the versions of this report prior to September 1982, do not have the estimated dealer margin. Commercial gasoline values in no way reflect trade discounts that would apply to commercial users.
 (4) Includes an urban transit tax applicable in the Greater Vancouver Area.

SOURCE: E.M.B., Oil Pricing & Market Analysis Division

Unless specified, it should be noted that the retail prices cited in this section are based on the posted prices established by propane suppliers, and not on actual pump prices at specific outlets. Thus the retail price figures used in these tables can differ significantly from the actual selling price in some locations. There is also a significant variation in propane prices regionally, depending largely on the distance the fuel must be transported from source.

FIGURE 13

MOTOR FUEL CONSUMPTION TAXES BY PROVINCE

Cents per Litre

(as of April, 1986)

PROVINCE	TAXES		
	Propane	Regular	Gasoline Unleaded
British Columbia	(c)	8.56	8.56
Alberta	(c)	(c)	(c)
Saskatchewan	(c)	(c)	(c)
Manitoba	4.8	8.9(b)	8.0(b)
Ontario	(c)	8.3(a)	8.3(a)
Québec	8.25	13.65(a)	14.4(a)
New Brunswick	4.8	9.7(a)	10.2(a)
Nova Scotia	9.7	9.7(a)	9.7(a)
Prince Edward Island	9.5	9.5(a)	9.5(a)
Newfoundland	10.9	10.9(a)	10.9(a)
Yukon Territory	(c)	4.2(b)	4.2(b)
N.W.T.	(c)	8.4(a)	8.4(a)

NOTES:

- a) Ad valorem rate.
- b) Fixed rate.
- c) Exempt
- d) An additional Urban Transit Tax of 0.95¢/L is applicable on retail sales of gasoline in the Greater Vancouver Area.
- e) The ad valorem method of tax calculation for propane is based on the average retail price of gasoline in N.S., Nfld. and P.E.I., whereas, in Quebec and N.B., it is calculated on the average retail price of propane. Remaining provinces utilize the fixed rate method of tax calculation or are exempt.
- f) Of the above mentioned five provinces (Refer to (e)), the ad valorem percentage rate for propane in N.B. is less than the ad valorem percentage rate for gasoline.

SOURCE: E.M.R., Oil Pricing & Market Analysis Division

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FIGURE 14

A COMPARISON OF COMMERCIAL PROPANE AND GASOLINE
PRICE IN SELECTED CANADIAN CITIES (1)

June, 1986

(Cents per Litre)

	<u>Propane</u>		<u>Gasoline(2)</u>	
	<u>Retail Price</u>	<u>Gasoline(3) Equivalent Price</u>	<u>Regular</u>	<u>Unleaded</u>
Yellowknife	34.9	41.9	55.9	58.0
Whitehorse	39.8	47.8	53.0	55.1
Victoria	34.4	41.3	44.6	46.8
Vancouver	30.4	36.5	50.0	52.2
Kamloops	33.0	39.6	49.9	52.1
Edmonton	28.0	33.6	39.8	41.9
Calgary	28.0	33.6	35.5	37.6
Saskatoon	29.0	34.8	40.3	42.5
Regina	28.5	34.2	39.8	42.0
Brandon	35.3	42.4	46.9	48.2
Winnipeg	36.0	43.2	46.3	47.6
Peterborough	29.0	34.8	50.5	52.4
Toronto	28.9	34.7	50.5	52.4
Ottawa	29.2	35.0	51.0	52.9
Montréal	36.3	43.6	49.5	53.1
Québec	36.6	43.9	49.7	53.3
Saint John	42.3	50.8	48.0	50.7
Halifax	45.0	54.0	43.6	45.4
St. John's	51.2	61.4	50.1	52.2

NOTES:

- 1) Prices represent month-end values.
- 2) Estimated theoretical pump prices are based on the posted dealer tankwagon price plus an estimated dealer margin, and includes provincial sales tax, federal sales tax but excludes the portion of the federal excise tax which is refundable for commercial purposes (1.5 ¢/l). prices shown in the versions of this report prior to September 1982, do not have the estimated dealer margin.

Commercial gasoline values in no way reflect trade discounts that would apply to commercial users.
- 3) Delivered energy equivalence of 1.2 litres of propane for each litre of gasoline.

SOURCE: E.M.R., Oil Pricing and Market Analysis Division.

V. CONSUMER ATTITUDES TO PROPANE

The Market Development Committee of the Propane Gas Association of Canada commissioned a survey on Canadian attitudes towards propane gas in 1985. The survey was carried out by the Canadian Gallup Poll using their weekly national omnibus. The sample comprises approximately 1,000 personal interviews per week, designed to be representative of the Canadian adult civilian population aged 18 years and older. Interviews were conducted between November 21 and December 7, 1985.

Some of the findings of this poll are listed below:

- 79% of Canadians said that they knew that propane could be used for motor vehicle fuel;
- Ratings of propane gas for motor vehicle fuel are neutral on availability and safety, and more positive on economy and engine life expectancy;
- Propane gas is generally rated above natural gas, but below gasoline and diesel fuel as a motor vehicle fuel. It is perceived as almost equalling diesel fuel for economy, but is rated lowest of the four fuels for safety;
- 24% of Canadians say that there is a probability of their considering propane for their next motor vehicle type, but only 5% are definitely considering it;
- The Atlantic Provinces are more favourable toward propane as a home heating fuel, than as a motor vehicle fuel;
- Males are more favourable towards propane as a vehicle fuel than females;
- 8% of Canadians claim to be in a position to influence choice of motor vehicle fuel in their place of employment; 40% of this group say that they would definitely or probably consider propane gas;
- The main perceived advantages of propane as a vehicle fuel are its cheapness, cleanness and speed, while the main disadvantages mentioned on an unaided basis are its volatile and explosive nature with attendant danger and lack of safety, and availability problems.
- The most highly educated group have the highest perception of the economy and cleanness of propane, but also of its volatile nature and availability problems.

CONCLUSIONS

There is a fairly high level of knowledge of the use of propane gas, and a somewhat more positive than negative perception of it. However, awareness of the qualities of economy, cleanness, efficiency and effect on engine life expectancy when used as motor vehicle fuel needs to be strengthened. At the same time, concerns about danger and availability must be allayed.

There would seem to be opportunities to build on strengths particularly in the following areas:

- B.C. - high level of knowledge and more positive attitudes, sees propane as economical and clean, and voices less concern about safety.
- Prairies - high level of knowledge and generally more positive attitudes, voices less concern about safety. Perception of availability problems needs to be addressed.
- Ontario - more knowledge about propane as a motor vehicle fuel than as a type of home heating, but people are used to using it for outdoor barbecues. No strong positive or negative attitudes, but more open to consideration of propane as home heating.
- 18-29 years - see propane as an economical fuel, and more open to considering it for home heating and motor vehicle fuel.

The high socio-economic group are more knowledgeable about propane as a motor vehicle fuel than as a type of home heating, have positive perceptions of it as clean, and have had experiences with it for outdoor barbecues. If their resistance to considering propane for home heating or motor vehicle fuel stems from their perception of availability problems, then this group may also provide an opportunity for expansion if reassured on availability.

